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| 10/692,860 | 10/27/2003 | Nathan Paul Monty | 1798-000001/US | 9225 |

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| EXAMINER | |
|---|---|
| JACKSON, CORNELIUS H | |
| **ART UNIT** | **PAPER NUMBER** |
| 2828 | |

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/692,860 | MONTY, NATHAN PAUL | |
| | Examiner | Art Unit | |
| | Cornelius H. Jackson | 2828 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,4-10,13,14,17-23,26-28 and 30-45* is/are pending in the application.

4a) Of the above claim(s) *34-37 and 39-43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,4-10,13,14,17-23,26-28,30-33,38,44 and 45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/24/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Acknowledgment*

1. Acknowledgment is made that applicant's Amendment, filed on 24 September 2004, has been entered. Upon entrance of the Amendment, claims 1, 4-10, 13, 14, 17-23, 26-28 and 30-33 were amended, claims 34-37 were withdrawn, claims 2, 3, 11, 12, 15, 16, 24, 25 and 29 were canceled and claims 38-45 were added. Claims 1, 4-10, 13, 14, 17-23, 26-28 and 30-45 are pending in the current application with claims 34-37 and 39-43 were withdrawn from further consideration.

### *Election/Restrictions*

2. Applicant's oral election of Group I (claims 1-33) as stated in the reply filed on 24 September 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Newly submitted claims 39-43 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The invention of independent claim 39 fails to require that at least two sidewalls form the laser discharge region, where the at least two sidewalls are sectional sidewalls, as presently in independent claims 1 and 13, or at least one sidewall form the laser discharge region

where the first and second surfaces have portions of which are not, or such that no surface of the electrodes forming the boundary of the waveguide is, completely covered by the at least one sidewall, as previously presented by original independent claims 1 or 13.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 39-43 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 4, 5, 8, 10, 13, 17, 18, 21, 23, 26-28, 32, 38, 44 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Yarborough et al. (5140606).

Regarding claim 1, Yarborough et al. disclose a laser discharge chamber **Figs. 1-7** for use in lasers comprising; an upper electrode **36**, the upper electrode **36** having a first surface; and a lower electrode **38**, the lower electrode **38** having a second surface, where the first surface and second surface are separated by at least two sidewalls (**both sides of the electrodes have sidewalls formed by a plurality of dielectric brackets 60)** where the first surface and the second surface face each other, where the first surface, second surface, and the at least two sidewalls form the laser discharge region **col. 6, lines 46-61**, where the at least two sidewalls are sectional sidewalls **60**, **see col. 6, line 15-col. 8, line 13**.

Regarding claim 13, Yarborough et al. disclose a laser **Figs. 1-7** comprising; a laser discharge region **col. 6, lines 46-61**, wherein at least a portion of the laser discharge region is surrounded by electrodes **36,38** and at least two sidewalls (**both sides of the electrodes have sidewalls formed by a plurality of dielectric brackets 60)**, wherein the at least two sidewalls are sectional sidewalls **60**; an oscillating electromagnetic field **RF generator**, wherein the electromagnetic field is produced by an oscillating current supplied to the electrodes such that the electromagnetic field is produced in the laser discharge region **col. 6, lines 46-61**; and a lasing material **$CO_2$ lasing mixture; col. 6, line 47** placed in the discharge region **col. 6, lines 46-61**, wherein the electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material, **see col. 6, line 15-col. 8, line 13**.

Regarding claims 4 and 17, Yarborough et al. disclose the sectional sidewalls are separated by sectional gaps, **see Fig. 3**.

Regarding claims 5 and 18, Yarborough et al. disclose at least two sidewalls are made of ceramic, **see col. 12, lines 28-38. Also see Shackleton et al. (2003/0058913), [0002], [0013], [0023] and [0024]**.

Regarding claims 8 and 21, Yarborough et al. disclose the electrodes are made of metal, **see col. 12, line 33**.

Regarding claims 10 and 23, Yarborough et al. disclose a protrusion is formed in at least one of the upper electrode and the lower electrode, since the outside surfaces of the electrodes have channels **76,78** which protrudes up around the copper pipes **74,75 see Figs. 2, 5 and 7**.

Regarding claims 26 and 27, Yarborough et al. disclose the lasing material, **see col. 6, line 47**.

Regarding claim 28, Yarborough et al. disclose a housing **20**, where the housing encompasses the laser discharge region and is pressurized to sub-atmospheric pressures **see col. 6, lines 46-61**.

Regarding claim 32, Yarborough et al. disclose the cross-section of the discharge region is varies along the length of the discharge region, since it is inherent that the cross-section where a sidewall is located is different than the cross-section where a sidewall is not, **see Figs. 3, 5 and 7**.

Regarding claim 38, Yarborough et al. disclose the laser is a waveguide laser **col. 6, line 18** such that the sidewalls and electrodes guide the electromagnetic field formed in the discharge chamber, **see col. 6, lines 30-39 and col. 7, lines 19-43**.

Regarding claims 44 and 45, Yarborough et al. disclose wherein the at least two sidewalls are connected, this is inherent since the sidewalls are connected by the electrodes, **see Figs. 3 and 5**.

6. Claims 1, 4, 5, 8, 9, 13, 17, 21, 22, 28, 32, 44 and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Shackleton et al. (5140606). Regarding claim 1, Shackleton et al. disclose a laser discharge chamber **Figs. 1-4 and 7** for use in lasers comprising; an upper electrode **24E(24F)**, the upper electrode **24E(24F)** having a first surface; and a lower electrode **26E(26F)**, the lower electrode **26E(26F)** having a second surface, where the first surface and second surface are separated by at least two sidewalls (**both sides of the electrodes have sidewalls formed by a plurality of dielectric brackets 60[70])** where the first surface and the second surface face each other, where the first surface, second surface, and the at least two sidewalls form the laser discharge chamber, **see [0002]-[0008] and [0023]-[0031]**.

Regarding claim 13, Shackleton et al. disclose a laser **Figs. 1-4 and 7** comprising; a laser discharge chamber, wherein at least a portion of the laser discharge chamber is surrounded by electrodes **24E(24F), 26E(26F)** and at least one sidewalls (**both sides of the electrodes have sidewalls formed by a plurality of dielectric brackets 60[70])**, wherein the at least two sidewalls are sectional sidewalls; an oscillating electromagnetic field **RF potential**, wherein the electromagnetic field is produced by an oscillating current supplied to the electrodes such that the electromagnetic field is produced in the laser discharge chamber; and a lasing material **CO2 lasing gas mixture; [0023]** placed in the discharge chamber, wherein the

electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material, **see [0002]-[0008] and [0023]-[0031]**.

Regarding claims 4 and 17, Shackleton et al. disclose the sectional sidewalls are separated by sectional gaps, **see Figs. 2-4 and 7**.

Regarding claims 5 and 18, Shackleton et al. disclose at least two sidewalls are made of ceramic, **see [0002], [0013], [0023] and [0024]**.

Regarding claims 8 and 21, Shackleton et al. disclose the electrodes are made of metal, **see [0006]**.

Regarding claims 9 and 22, Shackleton et al. disclose all the stated limitations, **see [0027]**.

Regarding claim 28, Shackleton et al. disclose a housing **22**, where the housing encompasses the laser discharge region and is pressurized to sub-atmospheric pressures, **see [0002]-[0008] and [0023]-[0031]**.

Regarding claim 32, Shackleton et al. disclose the cross-section of the discharge region is varies along the length of the discharge region, since it is inherent that the cross-section where a sidewall is located is different than the cross-section where a sidewall is not, **see Figs. 2-10**.

Regarding claims 44 and 45, Shackleton et al. disclose wherein the at least two sidewalls are connected, this is inherent since the sidewalls are connected by the electrodes, **see Figs. 2-4, 6, 7, 11 and 12**.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 6, 7, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yarborough et al. (5140606). Yarborough et al., as applied to claims 1 and 13 above, teach all the stated limitation except for the sidewall being made of BeO or AlN; instead, Yarborough et al. teach an insulative material, which was known by one of ordinary skill in the art at the time the invention was made to be a ceramic. The materials made of BeO or AlN are ceramics and it would have been within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

9. Claims 14 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yarborough et al. (5140606) in view of Mixon et al. (5764505). Yarborough et al., as applied to claims 13 and 28 above, teach a RF power supply **RF generator** and all the stated limitation except for a microprocessor. Mixon et al. teach a microprocessor for controlling a gas discharge laser is well known, **see col. 1, line 9-col. 3, line 3**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the microprocessor of Mixon et al. with the laser of Yarborough et al. to allow automatic operation of a laser system, **see col. 3, lines 6-38**.

10. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yarborough et al. (5140606). Yarborough et al., as applied to claim 28 above, teach all the stated limitation except for the housing being formed from at least one electrode or sidewall; instead, Yarborough et al. teach a housing surrounding the electrodes and sidewalls which surrounds the waveguide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use any element that surrounds the waveguide as housing, since it has been held that constructing a formerly integral structure in various elements (or formerly separate elements into one) involves only routine skill in the art [Nerwin v. Erlichman, 168 USPQ 177, 179] and since it was well known that the electrodes and the sidewalls may be used as housing **see Krawetz (3641454) col. 2, lines 25-33**.

11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yarborough et al. (5140606) as applied to claims 13 and 28 above, and further in view of Jones et al. (6195379). Yarborough et al. teach all the stated limitations except for the distance between the first and second surfaces varies along the length of the laser. Jones et al. teach the distance between the first and second surfaces varies along the length of the laser, **see Figs. 4-6**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the electrode designs of Jones et al. in the laser of Yarborough et al. in order to obtain a desired wavelength or output power, since it has been within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Onozuka et al. (5417140) teach a similar invention.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (571)272-1942. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

chj

MINSUN CHI HARVEY
PRIMARY EXAMINER